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STUDENTS' METACOGNITIVE KNOWLEDGE ABOUT WRITING

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and Carol Sue Englert

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ABSTRACT

To determine students' metacognitive knowledge of the expository writing process, a study analyzed fifth and sixth graders' declarative, procedural, and conditional knowledge by means of group questionnaires and individual interviews at all stages of their participation in one of three year-long writing programs. The programs emphasized social context, purpose and audience, and/or the use of text structure knowledge in writing. Results suggested that creating a social context enhanced students' awareness of audience, purpose, and the different aspects of the writing process. Instruction in text structure seemed to enhance students' understanding of both the questions answered by expository writers and the conventions used in expository writing, such as key words and phrases. The combined program resulted in students' enhanced understanding of the extent to which these conventions can be used as signals to their readers of their writing's purpose. Findings showed that all the programs had a positive impact on students' knowledge about the writing process and writing strategies. Observations also revealed that students used this knowledge in other curricular areas. (Tables of data and some student commentary from individual interview sessions are included. (JD)

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Abstract

This study examined fifth- and sixth-grade students' metacognitive knowledge about the writing process, specifically in writing expository texts. Students' declarative, procedural, and conditional knowledge was examined using group questionnaires and individual interviews prior to, during, and following their participation in one of three yearlong writing programs. The programs emphasized (a) social context stressing purpose and audience, (b) text structure knowledge and its use during writing, or (c) a combination of the two. Results suggested that creating such a social context enhances students' awareness of audience and purpose as well as their understanding of different aspects of the writing process. Instruction in text structure enhances students' understanding of the questions expository writers answer and the conventions used in expository writing, such as key words and phrases. The combined program resulted in students' enhanced understanding of how such conventions can be used as signals to their readers about the purpose of their writing.

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II

STUDENTS' METACOGNITIVE KNOWLEDGE ABOUT WRITING[1]

Taffy E. Raphael, Becky W. Kirschner, and Carol Sue Englert[2]

Interest in understanding and describing the writing process has increased dramatically in the past decade (Bouchard, 1983; Hairston, 1982; Murray, 1982). An integral part of studying the writing process has involved examining what skilled writers know about writing and how they engage in writing activities (e.g., Berkenkotter, 1983; Nystrand, 1982). Additional research has involved examining and manipulating the writing curriculum in classrooms from elementary to secondary schools (e.g., Applebee, 1984; Calkins, 1983; Florio & Clark, 1982; Graves, 1983). Although some literature exists which describes students' understanding of the writing process and how this understanding influences their writing ability (e.g., Hansen, 1983), most research has focused primarily on the writing of narratives (e.g., Gordon & Braun, 1985). The study presented in this paper is a descriptive examination of upper elementary students' metacognitive[3] knowledge of the writing process for both narrative and expository writing.

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[1]This paper is based on a presentation given at the National Reading Conference, San Diego, December 1985.

[2]Taffy W. Raphael is coordinator of the Teaching Expository Reading and Writing Project and associate professor of teacher education at Michigan State University. Becky W. Kirschner is a research associate on the project. Carol Sue Englert, senior researcher with the project, is an assistant professor in MSU's Department of Counseling, Educational Psychology and Special Education. The authors with to thank Kimberly Crawford and Kathy Fear for their assistance in analyzing the individual interviews and Karen Sands and Steve Kleinedle for assistance in analyzing the group questionnaires.

[3]Metacognitive refers to knowledge about and control of the cognitive process. In this paper, metacognitive means knowing about writing strategies and when to use them.

Students' metacognitive knowledge was examined prior to, during, and following their participation in one of three writing programs implemented over the course of an academic year. The programs all introduced students to the process of writing, though each program stressed different aspects of the process. Two areas of research contributed to the development of the writing programs. The first area considered in the development of all programs was research on the writing process. The second area that contributed to the development of the different programs was research on metacognitive knowledge, generally and specifically, on the effects of the social context and of knowledge of text structures on students' metacognitive knowledge about writing.

The Process of Writing

Research on the process of writing has detailed a nonlinear process that includes activities during prewriting, drafting, revising, and editing (Flow & Hayes, 1981). Throughout this process, writers focus with varying degrees of attention on the topics about which they were writing, their audiences, their reasons for writing, and the form in which they present their writing (Britton, 1978; Kinneavy, 1971; Moffett, 1968). During prewriting, for example, writers engage in activities designed to help them generate ideas. These activities include brainstorming, uninterrupted sustained writing for several minutes, imaging previous experiences, and so forth. Student writers also consider their audiences, such as the teacher only or a wider audience of classmates, family members, and others. They consider their reasons for writing, both generally (e.g., to communicate a feeling) and specifically (e.g., to tell about what it felt like to win the relay race). Finally, they

consider how their papers should be organized and how their ideas should best be presented. Although there are several ways to teach students about the writing process, two lines of inquiry in the research literature seem likely to have an impact on students' assumptions about writing and their activities within the writing process.

Social Context[4]

Research has indicated that the social context in which students learn to write has a major impact on the type of writing they produce (DeFord, 1986) as well as their control of prewriting, drafting, revising, and editing activities. Several researchers have stressed the importance of creating a social context to foster writing (Calkins, 1983; Graves, 1983; Hansen, 1983; Rubin & Bruce, 1986). The audience is a particularly important aspect of social context (Hansen, 1983; Rubin & Bruce, 1986). Audience provides a forum for the expression of one's ideas and implies to children that different audiences require different purposes in the prewriting, revising, and editing activities.

Several authors have recommended ways in which audience can be created. Some suggestions include sharing finished products within a single classroom (Graves & Hansen, 1983), using peer conferences and publication of written work (Graves, 1983), and transmitting work via microcomputer networks (Rubin & Bruce, 1986). Audience has a critical impact on how children construe the functions of writing. For example, when the audience is the teacher only, students may come to view writing as a way that teachers test knowledge; they

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[4]Although it is recognized that a social context existed in all classrooms, the term is used in this paper only to underscore the environment created to stress audience and purpose in writing.

may consider revision activities as punishment for sloppiness or inexactitude. When children write for an expanded audience that includes peers and others, they may view writing as communication and consider revision activities as essential to the communication process.

Establishing a purpose for writing is a second important aspect of the social context. Purpose affects the ideas generated during prewriting and the way in which those ideas are communicated. Purpose can be established in different ways. Rubin (1986) describes a writing project in a community in Alaska in which elementary school students published a brochure used by the Department of Tourism. DeFord (1986) suggests publishing class or individual books for placement in the school and classroom libraries (DeFord, 1986); Atwell (1983) recommends sharing ideas with teachers in the form of dialogue journals. When both purpose and audience are emphasized in the writing curriculum, students are more likely to be aware of the social and communicative purpose of writing. These aspects of writing enter the writing process at the points when children brainstorm topics during prewriting and decide on details to include during drafting. A sense of audience and purpose ensures that information is clear and organized during the revising and editing stages. In practice, audience and purpose are two aspects of the social context that are thoroughly interrelated and critical to the development of skilled writers.

Text Structure

Text structure is another aspect of writing that influences students' perceptions of what to do during the writing process. Research on the role of text structures suggests that a positive relationship exists between knowledge

of text structure and writing ability (Dunn & Bridwell, 1980) and that teaching about text structures improves students' writing (Englert, Raphael, & Kirschner, 1985; Gordon & Braun, 1985).

Knowledge about text structures appears to enter at several points in the writing process. During prewriting, writers consider how to present information to their audience, the questions they plan to answer, and the text structure that would best convey their ideas. During drafting, writers consider the information to include throughout their papers and those key words and phrases to include as signals to their readers throughout the structure. During revision and editing, writers examine their papers to ensure that the information is clear and organized.

Throughout the total writing process, understanding the types of information and questions that different text structures address helps students decide how to relate structure to purpose. Langer (1985) conducted developmental research examining the awareness of high-achieving students to differences in organizational patterns in stories and reports and the relationship of this awareness to their ability to produce papers within the two genres. She found that as early as third grade, students differentiated between the two and improved over time in their ability to produce such texts. She suggests that developmental differences may be better understood by studying children as they learn to elaborate on known genres and as they use them in relationship to specific goals.

Research Questions

This study examined changes in students' metacognitive knowledge as a result of their participation in programs which emphasized social context or

text structure instruction. Four groups were created to examine the influence of such instruction on students' metacognitive knowledge: (a) a social context group (SC) that learned and practiced writing within an environment that emphasized the writing process, particularly stressing purpose and audience; (b) a social context/text structure group (SC/TS) that received text structure instruction embedded within the social context for writing; (c) a text structure group (TS) that received text structure instruction as part of the writing process, but in the absence of an environment stressing audience and purpose; and (d) a no treatment control group (C) that received neither text structure instruction nor the defined social context, but participated in the traditional language arts curriculum of the school.

Three types of metacognitive knowledge were examined: (a) declarative knowledge concerning audience, purpose, and text structure; (b) procedural knowledge concerning steps in the writing process; and (c) conditional knowledge concerning how procedures vary under different writing conditions and during revisions. In analyzing this data, a general description of strategies was synthesized from group questionnaire data, with specific data and in-depth profiles of students' responses selected from individual interviews. It was predicted (a) that students who participated in the social context program would express a greater awareness of audience and purpose and would describe the writing process with an emphasis on the social, communicative, and interactive nature of writing; (b) that students who received text structure instruction would focus on strategies for prewriting, drafting, revising, and editing in terms of the types of questions different texts answer, the role of key words and phrases to enhance the clarity of writing, and the role of questions during planning and revision; and (c) that

students who received text structure instruction within a social context would show a combination of elements.

Methods

Subjects

The study's participants were 200 heterogeneously grouped students from 8 upper elementary classrooms. The students were from a lower socioeconomic status (SES) neighborhood, with an approximately equal mix of Caucasian, Hispanic, and Black ethnic groups. Students had been randomly assigned to classrooms at the beginning of the academic year by the school personnel. We then assigned the students by classroom to one of the three treatment groups or to the control group. Teachers identified a subset of 12 students from each treatment group for participation during in-depth individual interviews. Criteria used to select the students were that they represent a range of ability levels from low to high-average, based on a combination of teacher judgment and standardized test scores. To ensure that treatment groups were of comparable ability, an analysis of variance (ANOVA) was performed on students' language achievement scores on the subtest of the Stanford Achievement Test administered in the spring. The results showed no significant difference ($p > .05$) between groups.

Materials

We used group questionnaires and individual interviews to assess metacognitive knowledge at three points in the study: pretreatment, at the end of Phase I (i.e., midpoint) and at the end of Phase II (i.e., posttreatment). Pre- and posttreatment assessments included both questionnaires and interviews whereas the midpoint assessment included only questionnaires.

In addition, materials used both for assessment and instruction included writing packets consisting of think sheets that guided students through the prewriting, drafting, and revising activities in the writing process. These materials are described below.

Group questionnaires. The group questionnaire was developed for administration prior to training, midway through the programs, and following training. This questionnaire focused on the assessment of students' awareness of audience and purpose in writing. Sample questions were "Who reads your writing?" (audience) and "What reasons do you have for writing?" (purpose). Additionally, students were asked "What do you do when you write a paper? What do you do first? Second? Third? Fourth?"

Individual interviews. The individual interviews focused on students' knowledge of writing strategies, differences between reading and writing expository and narrative texts, audience, purposes for writing, steps in the writing process, the importance of editors, and text structures. Questions were similar to those asked on the group questionnaire regarding audience, purpose, and steps in writing. Additionally, to tap awareness of the writing process further, students were asked, "Why is editing useful?" and "Why would you revise a paper?"

To assess knowledge of text structure, two question sets were used. First, students were asked to discuss differences between writing stories and reports, including purposes, audience, and sources for ideas. Second, they were presented with the titles of three articles in a fictitious magazine about dogs. The titles (i.e., "Choosing a Dog for You: Labrador Retriever, Poodle, and Cocker Spaniel"; "Puppy's First Year"; and "Breaking a Puppy's Bad

Habits") were designed to elicit from students their knowledge of what information should be included for three different text structures: comparison/contrast, narration, and problem/solution.

Think sheets. During the instructional program, students completed packets with think sheets for each paper; the sheets consisted of questions to guide prewriting, drafting, editing, and revising, adapted from Kirschner and Yates (1983). Think sheets were consonant with the objectives and foci of the three treatment programs. Think sheets for the SC groups focused on audience (e.g., Who will read your paper? What will they think is interesting about your paper?) and purpose (e.g., How do you want your reader(s) to feel when they read your paper? Why are you writing about this topic?) in planning, peer editing, and revising drafts. Think sheets for the TS group focused on organization (e.g., What is the problem? Cause? Steps of the solution? Circle the part that tells about the problem) and key words (e.g., Circle the key words that tell there is a problem) in planning and revising drafts. Think sheets for the combined SC/TS group focused on a combination of social context and text structure. For example, students in the SC/TS group used an editing sheet prompting them to act as editors and consider parts they liked best, parts that were confusing, information that could be added to make the writing more interesting or easier to follow, regardless of the text structure. They also answered questions that focused on text structure, such as "What is being compared or contrasted" and "What could be added to tell how they are alike? different?"

These think sheets, plus first and second drafts, were used to examine students' conditional knowledge and their selection and implementation of

strategies during their production of text. Students completed approximately 10 writing packets (i.e., think sheets, first drafts, second drafts) over the course of the academic year.

Procedure

Teachers were interviewed in early fall to determine the treatment group most appropriate to their goals of instruction (e.g., a teacher who was using journals and some peer editing was placed in one of the social context groups; a teacher who indicated that she was uncomfortable with allowing students to share their papers was placed in a group without the social context treatment). Once we assigned teachers to treatment groups, we administered pretests to students in their classrooms. Pretreatment assessment included the questionnaires and interviews.

Following the adminstration of pretests, a two-phase training program began, with students receiving instruction from their classroom teachers (see Table 1).

Table 1

Activity Summary for the Four Writing Groups

Group	Phase I	Phase II
Social Context Only	Process writing introduced	Continue process writing using social studies topics
Social Context/ Text Structure	Process writing introduced	Text structure instruction for four structures
Text Structure Only	Weekly writing assignments	Text structure instruction for four structures
Control	No treatment	No treatment

In Phase I, three of the groups (SC, SC/TS, TS) were involved in writing expository texts, (e.g., one narration, one explanation, two comparison/contrast, and two problem/solution texts, but the specific writing activities differed across treatments. In the two social context groups (SC, SC/TS), instruction focused on creating a social context and purpose and encouraging participation in the process of writing from prewriting activities through final publication. Students in these classrooms completed a writing packet for each text structure over the course of eight weeks. This involved completing the think sheets focusing on prewriting, drafting, peer conferences, peer editing, and revising. Students in these classrooms also published a paper of their choice in a format selected by class vote. To control for practice effects, students in the TS group also wrote the six papers, but did not participate in peer editing or publication. Instead they produced first drafts of papers, each week writing one of the six assignments completed by the SC and SC/TS groups. The control group did not receive instruction or practice, but engaged in traditional language arts activities.

The focus of Phase II was the introduction of text structures in the SC/TS and the TS classrooms. The instruction consisted of seven steps. First, using an overhead projector, teachers presented one good example of each text type written by students during Phase I. The student worked in large groups to identify the structure of each paper and the characteristics (i.e., key words and phrases and questions answered in the text) that led to the identification of the dominant structure. Second, students repeated this activity, responding individually to their own six papers from Phase I. They identified the text structure type, the questions answered in the text, and any key words and phrases. Third, teachers reviewed with them the generic

questions answered in each text type (for a sample of generic questions for narration, see Singer & Donlan, 1982) and related key words and phrases. Fourth, students revised one of their Phase I papers, focusing on the questions, the organization of ideas, clarity, and use of key words and phrases. Fifth, teachers presented good examples of well-structured social studies passages; students again identified the structure, generic questions answered, and keywords and phrases. Sixth, they repeated this activity with less clear examples taken directly from their social studies books. Finally, they used the think sheets to plan, draft, and edit four papers on social studies topics, one each for narration, explanation, comparison/contrast, and problem/solution over the course of 8 weeks. Sources of information for the content of the papers were their social studies books, trade books, and reference materials.

In Phase II, treatment groups still differed in their emphases on audience and purpose. The SC/TS and SC groups wrote and published class social studies books on topics such as "Language and Culture" and "Knowing Our States." The TS group also planned, drafted, and revised papers on social studies topics, but without peer editing (audience) or publication (purpose and audience). The C group wrote social studies assignments, but without topics, structures, or instruction in the writing process.

Scoring Procedures

Questionnaires were examined by two adult judges who categorized students' responses for each question. These schemes then were verified by a third adult judge. Percentages were calculated for each category of responses by dividing the number of responses per category by the total number of responses given by the treatment group.

Individual interviews were administered and analyzed in two phases. First, two judges who were blind to the treatment group and hypotheses of the study administered the interviews. These two judges then read each interview and wrote a description characterizing the type of knowledge students in different classrooms displayed. Judges did not know which classrooms received which treatment, so they were not subject to preconceived views of how the students should have responded. Second, based on the characterizations of the different classrooms from the overall analysis of individual interviews and the group questionnaire data, we analyzed the interviews further to identify illustrative examples that supported the general characterizations and trends.

Writing packets were analyzed as follows. First, comparisons of students' first and second drafts were made in terms of types of revisions (e.g., mechanical, overall organization, additions, and deletions). General patterns were observed within and across the three treatment conditions. Second, target students who appeared to best characterize the patterns in each group were selected for further examination. For each of these students, the changes made from first to second draft were compared to their plans as outlined on their prewriting/planning, editing, and revising think sheets. This analysis focused on how students' awareness of audience and their knowledge of the writing process influenced their compositions.

Results

Measures discussed in this section are (a) the group questionnaires administered pretreatment, after Phase I (midpoint), and posttreatment, (b) the individual interviews administered pre- and posttreatment, and (c) the writing packets. The data sources were examined in terms of the between-

sub'ects factor of treatment (SC, TS, SC/TS, & C) and the within-subjects factor of time (pretreatment, midpoint, posttreatment). The dependent variables were declarative knowledge, procedural knowledge, and conditional knowledge. Students' declarative knowledge data focused on knowledge of audience, purpose, and text structure and were derived from students' responses on the group questionnaires and individual interviews. Procedural knowledge data focused on knowledge about steps in the writing process and how these may vary as a function of narrative versus expository writing, again derived from questionnaires and interviews. Conditional knowledge data concerning how procedures vary under different conditions were derived from students' responses to the questions about prewriting, editing, and revising on think sheet packets, as well as from their revisions from first to second drafts.

Declarative Knowledge About Writing

Awareness of audience. It had been predicted that creating a social context would affect students' perceptions of audience. To assess this, students were asked, "Who reads your writing?" Results showed that students' awareness of audience changed most notably for students in the social context classrooms (SC & SC/TS groups). This was obvious at midpoint and was maintained through Phase II. Table 2 indicates the percentage of students' responses when questioned about audience at midpoint in the training--after the social context had been created for two treatment groups (SC & SC/TS groups) but while no social context was created for the TS and the C groups. Table 3 indicates the percentage of responses about audience by the four treatment groups on the pre- and posttreatment questionnaires.

Table 2

Audience Awareness: Group Questionnaires
Midpoint Questionnaire[a]

	Context (SC & SC/TS)%	Practice (TS)%
Who reads your writing?		
Peers	57	10
Family	7	43
Teacher	30	38.5
No One	2.8	6.5
MSU	3	2

[a]Students could respond in more than one category.

Table 3

Audience Awareness: Group Questionnaire
End of Phase II[a]

	Social Context		Text Structure		Social Context/ Text Structure		Control	
	pre%	post%	pre%	post%	pre%	post%	pre%	post%
Who reads your writing?								
Peers	18	78	17	18	12	50	9	11
Family	41	13.5	47	35	29	7	31	29
Teacher	30	8.5	31	43	52	36	47	55
No One	11	0	5	4	8	4	13	5
MSU	--	--	--	--	--	--	--	--

[a]Students could respond in more than one category.

The most dramatic changes occurred in the frequency with which students in the SC and SC/TS groups noted peers as their audience. This was true at the end of Phase I, the end of the program, and in pre/post comparisons. For example, on the posttreatment questionnaire, peers were cited as an audience by 78% and 50% of the SC and SC/TS students, respectively, whereas only 18% and 11% of the TS and C students, respectively, cited peers. In contrast,

children in the TS and C groups considered their teachers and their families their primary audiences, although family was often cited as it related to reading homework.

The following comments from students' individual interviews are typical of the differences seen from pre to post and across treatments. Jenny[5] is a student in the SC group. Her pre- and posttreatment comments about audience were as follows:

> PRE: Sometimes my parents read my reports. Every once in a while I'll have a friend or two of mine get to read it and you swap. And my teacher reads it, too. If nobody important is going to read it, it doesn't matter the way you do it.
>
> POST: If there is just a score, probably my teacher, and if I got a good grade on it, my parents would see it, and maybe a couple of friends, if we were doing the same thing and want to check out each other. For a story, I guess almost anybody, we've been putting them into books and stuff.

Following participation in the SC group, she identified audience based on the purpose of the writing and greatly expanded her audience from "a friend or two" to "almost anybody," apparently because of the influence of the publishing process.

A similar change was noted in Dawn's comments prior to and following her participation in the SC/TS group. Initially she indicated that only Mr. V (her teacher) would read her paper. At the end of the year, she noted that, "My teacher, my mom, my grandparents, my aunt and uncle, and most of my family would read it; my editor, Ms. K., my friends if it was published."

These two examples contrast with those from students in the TS and C groups. Yolanda, prior to receiving text structure instruction, described her audience as follows: "If homework, my mom would read it first; in school, my

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[5]All names are pseudonyms.

teacher; if I could take it home, my sister. If a story, my teacher, my mother, one of my friends." At the end of the year, she responded, "Teacher or a friend." In the absence of a social context for writing, her range or audience actually decreased.

Roy, from the control group, shows minimal change. In the fall, he responded, "My teacher, or me." During posttreatment, he said, "Me, and the teacher. For a story I'd take it home and my parents would read it." Without the presence of the writing environment as created in the two SC groups, students tended to be limited in their view of audience or reader. The teacher, themselves, and perhaps their parents were the only audiences for their compositions.

Knowledge about purpose in writing. Students' knowledge about purposes in writing changed somewhat over time, with the most notable differences appearing on the midpoint comparison and in individual interviews. Table 4 presents data for the midpoint comparison on the basis of the group questionnaires; Table 5 presents the pre/post questionnaire data.

Table 4

Purpose of Writing: Group Questionnaire
End of Phase I[a]

	Context (SC & SC/TS)%	Practice (TS)%
Why do you write?		
For fun	19	10
For schoolwork	13	59
To communicate	35	18
To learn	12	3
To practice	19	5
Mechanics	2	0
Stories	1	3

[a]Students could respond in more than one category.

Table 5

Purpose for Writing: Group Questionnaire
End of Phase II[a]

	Social Context		Text Structure		Social Context/ Text Structure		Control	
	pre%	post%	pre%	post%	pre%	post%	pre%	post%
Why do you write?								
Fun	31	27	26	26	24	19	35	24
Schoolwork	29	35	38	42	57	42	35	67
Communicate	27	27	26	27	6	13	6	7
To learn	4	0	0	6	0	17	17	0
To practice/ Mechanics	8	10	10	8	18	10	6	2
Stories	--	--	--	--	--	--	--	--

[a]Students could respond in more than one category.

As seen in Table 4, creating a writing environment, or social context, led to an increased focus on communication, fun, practice, and learning as purposes for writing. For example, 35% of the context (SC & SC/TS) students' responses included citations of communication as the primary reason for writing, whereas their next most frequently cited category--writing for fun--garnered 19% of their responses. In contrast, students who had merely practiced writing (TS) cited school work as the primary reason for writing, followed by communication (59% & 18%, respectively). Only 3% of the TS students (who at this point had received no instruction, only writing practice) indicated that learning was one purpose of writing. Thus, students who experienced peer conferences, peer edited, and had their writing published rapidly began to perceive and emphasize the communicative nature of writing.

Table 5 provides percentage of responses in each category for the pre/post comparison. Differences were less dramatic overall on the posttreatment questionnaire. Most interesting, however, is the change in

students' responses about writing to learn. After students received text structure instruction (TS & SC/TS) they showed pretest-posttest increases (6% and 17%, respectively) in viewing learning as one purpose for writing. This suggests that the text structure treatment did impart a belief that writing was a means to gather information and learn from expository materials. Students in the SC and C groups, who received instruction focusing on audience and purpose but not on how to gather information from expository materials, showed the opposite trend (decreases of 4% and 17%, respectively). Apparently, students who were not taught strategies for gathering information from expository materials did not feel confident in their ability to write to learn. Control group students increased most in viewing schoolwork as the major purpose for writing.

The following comments from students' individual interviews highlight differences from pre- to posttreatment in the students' views about purposes for writing. Note in particular the change in view from writing as schoolwork and a means for teachers to evaluate understanding to a perception of writing as a student tool for learning and enjoyment. Also note the students' finer distinction between purpose depending on type of text (narrative versus expository).

Ridgely, a student from the SC group, stated his idea of reasons for writing at the pretreatment interview. The reason for stories was "they want to find out what I read to see if I know it. [For a report], I learn about other cultures, like how families lived." Although aware of differences between the two text types, Ridgely predicted that stories were written for assessment only. He also tended to cite a single reason for writing each type of text. Note the expanded number of reasons and their appropriateness in his posttreatment comments.

> [Writing stories]is for pleasure mostly, and it helps people remember if you write a story about something and all of a sudden somebody tells you to write a story about a certain place and you've been there before, you remember about it. To keep our imagination going. [Writing reports], well if it is a kid like me, then the teacher might try to teach them something; also grammar--we might be studying that; and I know you are going to have to write later, so you should learn how to do it before you have to do it.

Devonna was a student in the TS/SC group. Like Ridgely, she began the year viewing the purpose of writing as a means for teacher evaluation of her skills, or for practicing skills, stating that reports were "to see if I read the book good, the pages, and to see if I understand what she was saying," and that stories were, "to get practice on writing and to learn more about the guy. To see how much I know." Following her participation in the instructional program, she shifted to a view of writing as a form of recreation and for learning, stating the purpose for reports to be "so we can get information from our reports or learn about the state that we want to learn about," and of stories, "So you won't be bored or so you having something to read." Another interesting aspect of her answer is her view of her own writing as something she and others would read, which is consistent with the fact that her writing had, in fact, been published in the class book.

Keith was a student in the TS group. His pre/post responses clearly indicated a change from assessment at pretreatment. During his pretest answers, Keith believed stories were "to see if I know what I was supposed to do"; reports were "to see if I read it over carefully." His posttreatment answers demonstrate an orientation combining learning and assessment. Stories were "to see if you really learned anything"; Reports were "to let us know about the cities and things because we've read about them; see what you've learned." Unlike Devonna or Ridgely, he did not address purposes such as

pleasure or communication, except in terms of communication with the teacher. This was not surprising given the absence of this emphasis in his treatment group.

Stacy, a student in the control group, actually seemed to regress. At pretreatment she indicated the teacher was the dominating factor for writing but also indicated interest as another factor. For Stacy, the purpose of stories was that [the teacher] thinks that it would be a good story to write. She stated the purpose of writing reports "Because it is probably interesting to her and she wants to see if it is interesting to us." At the end of the year, she suggested stories were "so people could get information from it." When asked about the purpose of writing reports, she stated, "I don't know." The interviewer then asked, "Do you have any ideas [about why you would write a report] at all?" Stacy replied, "No."

Knowledge about text structure. We predicted that text structure instruction would have an impact on students' perceptions of the features and purposes in narrative and expository texts. First, instruction should clarify students' view of critical features which distinguish narrative and expository texts. Second, instruction should help them distinguish between the questions different types of texts are designed to answer. To assess the former, students were asked to describe how writing stories and writing reports differed. To assess the latter, we asked them to predict the content and organization of a text when given only the title.

Students in their interviews addressed differences between narrative and expository text writing. A major difference cited by most students was the creative, imaginary aspect of story writing in contrast to the factual,

informative nature of report writing. For example, Ridgely, a student in the SC group, in his posttreatment interview stated, "If it is a fiction story, you don't have to research it. In a report, you have to do research so you can get everything right." Roy, a control group student, stated, "Because [it's a] story, you get all the information that you want. But [in] a report you've got to get information that is true. [In] a story you can write anything you want." Roy's sense of difference is that stories give the author complete and absolute freedom. Ridgely focuses more specifically on the need to be accurate in reports.

In contrast, two students who received text structure instruction focused more specifically on the different text structure features of expository (e.g., questions answered and key words) versus narrative (e.g., characters) writing, and on the type of information appropriate for each type. Stacy, from the TS group, suggests the difference is that "You have different questions and key words. The report has more information that the story [hasn't] . . . [I] use my imagination . . . when writing a story." Dawn, from the SC/TS group articulates the need for character information in stories versus structural or comparison information in a report, stating "Because [it's] a story you have characters, but with a report, you've got like comparing two states, and states aren't characters. . . . [also in] a report you have research, in a story you can just have fantasy."

To examine students' awareness of questions different text types might address, students were asked to predict the content and organization of articles based on three titles in the fictitious dog magazine previously described. Students in the SC and C groups showed relatively little change from pretreatment responses, and their comments seemed much like those of

students in the structure groups (TS & SC/TS) during pretreatment interviews. Prior to instruction in text structure, students tended to suggest content that related in a general way to the title, but they were unable to provide consistently relevant information. For example, Dawn indicated that the "Choosing a Dog" article would be about "if you like poodles, you might want to find out where you can go to get their hair curled and get some shampoo . . . how to pick a dog." Her relevant content related to picking the dog is somewhat offset by the irrelevant details about shampooing. For the title "Puppy's First Year," she suggested that it "probably tells you how to give him a bath and what age he has to be . . . how to tell if he's sick . . . because at a year old he might be able to take a bath." She indicated no awareness of the likelihood of explanation or narration about the events in the puppy's life, again focusing on the less relevant information about bathing.

Her answers below after SC/TS instruction were a marked contrast from her earlier responses. She differentiated clearly between the type of text structure used in each article, comparison/contrast, narration, or problem/solution articles. Notice how clear she became about the type of information to be included in each article, how the information might be organized, and the questions each one might answer.

> CHOOSING A DOG: I would include how good they are at protecting your home, how good pets are with children, and what their size is, how big they get. A compare/contrast because you might be comparing two dogs and find one that you like . . . comparing the characters[istics].
>
> PUPPY'S FIRST YEAR: Probably how old you have to be to give it a bath because you have to be a certain age, how much they have to eat so that don't get full or if they don't have enough. [It is] a narrative because it would be talking about his first year, where does it take place? Who's in the story? And when does it take place?

> BREAKING A PUPPY'S BAD HABITS: How to break the bad habits, what the habits are. How you solved it. [It is] a problem/solution, What was the problem? How did you solve it? Clues were "bad habits."

Bill, another student in the SC/TS group showed similar gains. For example, during the pretreatment interview, he indicated that the "Breaking a Puppy's Bad Habits" article could be about "the puppy likes to nibble on things and you might have him on the furniture, and you might want to break him off the furniture and stuff." His details were relevant and he identifies problems, but he did not mention the type of text or questions the article might answer. During the posttreatment interview, he is more specific, stating the following: "[In this article,] the kind of questions the text should answer should be, What's the problem? What's the solution? and, probably, What order?" Like Dawn, his answer suggests a clear understanding of what elements to include and how they should be organized.

In summary, students' declarative knowledge about writing was notably influenced by the type of instruction they received. Students who participated actively in a social context stressing audience and purpose in writing focused on writing as a way of sharing ideas to be read by many different readers. Students who received text structure instruction discussed such knowledge as it related to presenting ideas and organizing them.

Procedural Knowledge About Writing

Steps in the writing process. Students described the steps they use in the writing process on the midpoint questionnaire and during their posttreatment interviews. In addition to asking for specific steps, the interviews also focused on the editor's role and the role of revision in the writing process. Differences in students' abilities to describe what authors do as they write were attributable to differences in treatment.

On the group midpoint questionnaire, students were asked to explain four steps or phases they go through as they write. Students' responses were categorized as strong, adequate, or weak based on a combination of their appropriateness as strategies in general and on the order in which they presented their responses. For example, during prewriting or planning, strong strategies included brainstorming or drawing pictures to gather ideas, since research indicates that both activities are appropriate and useful (Graves, 1983). Adequate strategies included drafting or titling the paper, since these activities are aspects of writing but are not activities designed to generate ideas. Weak strategies that did not contribute to or inhibit the generation of ideas included writing the date, looking up words, or checking spelling. Percentages of students' responses by category for each of the phases are presented in Table 6.

Students who had been involved in a social context for writing consistently generated a greater proportion of responses in the strong category and a smaller proportion of responses in the weak category than those students who had only practice writing the assignments outside of a social context. These data are supported and further explained by students' responses on the posttreatment interviews. Sample responses from each of the four treatment groups are found in Table 7. The differences across groups are obvious in students' descriptions of the general writing process and specific information they provided regarding the roles of audience and editors, the questions texts answer, and key words and phrases in different types of texts (i.e., comparison/contrast).

For example, Jenny and Dawn had both participated in the social context training, and their answers reflected an awareness of the steps in the writing

Table 6
Steps in the Writing Process
Group Questionnaire: End of Phase 1[a]

	Context (SC & SC/TS)	Practice (TS)
1. How do you begin writing?		
Strong Strategies brainstorm, get ideas, make pictures	73.0	43.5
Adequate Strategies draft, title paper	13.0	25.5
Weak Strategies be neat, word bank	15.5	36.0
2. Then what would you do?		
Strong draft, brainstorm think about draft, edit introduction	82.5	61.0
Adequate good middle, put pieces together, use forms/think sheets	6.8	6.5
Weak date, spelling, look up words	10.5	32.5
3. Then what would you do?		
Strong edit, write, draft/rewrite, think about first draft, answer questions on paper	85.5	34.0
Adequate draw pictures, think about ideas describe things, proof-read, write a good ending	6.5	22.0
Weak handwriting, title, capitalize, paragraph, indent, make complete	8.0	44.5
4. What are some of the last things to do?		
Strong final draft, revision, fix it, change it, answer questions, proof	76.3	35.5
Adequate drafting, editing with a friend, think about first draft, conclusion	10.7	25.3
Weak details, hand in, paragraphs, make cover, brainstorming/prewriting don't scribble, have good ideas	13.0	39.2

[a]Percentage of responses; students could respond in more than one category.

Table 7

Steps in the Writing Process: Posttreatment Individual Interviews

Group	Student Comment
SC Jenny:	First you write down what kinds of things you're going to be doing, and you just get all your ideas out on the page. And then you try to make the first draft and you get as much stuff in as you can. Then, what we are doing in our class is, we check them over with editors. They read your paper and they say, well this doesn't sound right and maybe you should try to change this to so and so. Before that I start thinking about my first draft, and then . . . do [the] editorial. Then you just do a revision form where you decide what things you want to change, and then you put it all together in a final copy.
TS Keith:	If you want to do a compare/contrast [paper] you got to tell what you are comparing it with, and contrasting about. See what would go first, second, put them in a certain order. See if there is any misspelled words or something and try to fix it up, if there is something you have to add or take away, then you put that on a different piece of paper and then you'd go into [the] final draft. [If a friend were writing a story] I would tell him where does this take place, what is this about, and who is it about, and what came first, second, and third. Gather information if he has to, then he would write it down for his first draft, then check for misspelled words and take stuff out and add stuff, then go onto final draft.
SC/TS Dawn:	[To write a compare/contrast paper], I would look at two people, find their alike and different points. Like if I was comparing my friend Stacy and my friend Tracy, I would say that Tracy is shorter than Stacy or Tracy has real dark hair and Stacy has a little light hair. [If I didn't know them], I'd have to go to the library and do some research on them. I sit down and write the first draft. Before that I do brainstorming . . . like if I was doing George Washington and Abraham Lincoln I'd have to write [about] both Presidents . . . no full sentences, only words. Before our first draft we do prewriting and preplarning. (Interviewer asks, What is that?) Prewriting is like in a compare and contrast, who or what is being compared on? What are they being compared on? How are they alike and how are they different? (Interviewer asks: Then the first draft?) Yeah, then we get these sheets with a friend, and we write, what do you think your editor said about your paper? What will you do to change the things with your editor suggestions? Your editor reads your story, and on the pink sheet they tell you what you should do to get it in better shape for your final draft or what you should take out. And what you should put in. (And then?) If it was published, my family would be reading it and my friends.
C Terry:	I never heard of it [compare/contrast paper]. When I write a story this is how I first start off, write the title and then write the beginning of it. First step I do is write the major story. And then I go all the way through and stop at periods and when I ask a question I write a question mark. And if it's exciting, I put an exclamation mark. Put a period [at the end].

process and the role of an editor prior to revision. Dawn, who had also received text structure instruction, suggested that part of the process was considering what questions should be answered. Notice how much more organized and specific Dawn's answer is than Jenny's in detailing what information must be included and how it is to be organized. Keith, a student in the TS treatment, also mentioned the questions one should answer in a story and suggested an organization for comparing and contrasting and other aspects of the writing process, but he mentioned nothing about sharing the paper with friends or other readers. When Keith mentioned a friend, it was in the context of telling the friend what steps to follow rather than communicating with, sharing with, or learning from friends. Terry, one of the control group students, indicated first that he had never heard of a compare/contrast paper (when given a prompt by the interviewer), then described a process that largely centered around global statements ("write the major story") and punctuation.

Students' comments also suggest differences among groups in terms of the salience of an editor in the writing process. Table 8 provides further elaboration of their views of the role of an editor. What is most striking is that many students in the social context groups focused on the role of sense making and reader interest in the editorial process. For example, 7 or the 12 students from the social context groups specifically mentioned that the editor helps their story make sense or helps make it more interesting, yet none of the TS students mentioned those aspects in their description of the editor's role.

The emphasis on sense making in the editorial process suggested that peer editors were serving as external monitors for comprehension breakdowns in the

Table 8

Knowledge of Editor's Role: Posttreatment Individual Interviews

Group	Student Comment
SC	
Jenny:	It makes me think about what you wrote and like what thinks you need to change and work on.
Oudone:	It helps you to learn because when you wrote it you just had your ideas but when someone else helps you or edits it, you have more ideas and then it gets more interesting.
Melissa:	[My] editor can help me write better and make my story make sense, correct my spelling, and stuff like that.
Darryl:	[My] editor checks and sees if it makes sense. They see if it makes sense and look for run-on sentences and checks spelling. Sees what I should add or what I should drop.
Richard:	He can go through the paper and find out like things that you did wrong and then he'll tell you his ideas, and what he thinks.
Alex:	[My] editor tells me how he likes it and how he doesn't like it. I write something down, and I can't explain it right, and I can't give it thoughts or write it in sentences, maybe he can help me.
TS	
Yolanda:	To make people understand it better. . . . get a better grade.
Jennifer:	It's the same as revising.
Jim:	Editing helps you get a job.
Kelly:	To look it over and add anything possible like key words and stuff. Check spelling.
Salome:	Puts and "x" where you should put a key word so that you know on your final copy to put a key word there. Or circle things so that if you want to add things on to it or take things out.
SC/TS	
DeVonna:	Change or add punctuation, she would give me her ideas. An editor is useful because sometimes your brain misses something. . . . easier to hear mistakes from a friend than your teacher.
	The best thing . . . my editor helped me organize the paper.
Robert:	He corrects spelling and fixes up the story and makes it [make] more sense.
Dawn:	Your editor reads your story and on the pink sheet they tell you what you should do to get it in better shape for your final draft, or what you should take and what you should put in.
Tamara:	So that you know what the other person would like to see to make it more interesting . . . if she liked it or not.
Mark:	Because you might have your own opinions and think this paper is the best thing. Somebody else, they don't like it. Try some of their ideas, you might want to change it.

communication process. As one student commented, "I write something down and I can't explain it right, and I can't give it thoughts or write it in sentences, maybe he can help me." Another student similarly noted, "An editor is useful because sometimes your brain misses something." In addition, peer editing seemed to provide opportunities for peer-mediated coaching and learning. The students mentioned that editors help them "think about what you wrote," "[help] you learn because when you wrote it you just had your ideas . . . but someone else [gives you] more ideas," and "[my] editor helps me write better and [makes] my story make sense . . . . [If I can't explain it right] maybe he can help me."

In summary, social context students viewed the author-editor relationship as one from which they got ideas or learned from their editor; they suggested that the relationship was a thoughtful interchange that led them to reflect on and extend their writing. Peer conferencing and peer editing helped these writers understand the importance of making sense in writing and provided the response that made them look at their topics in a reflective way. These students vividly understood that the purpose and utility of editing was to encourage them to try out, extend, and refine their ideas further.

In contrast, students in the TS classrooms focused solely on mechanics in the editing process. Even when students used text structure to find errors, the process was primarily mechanical, with little attention given to the importance of making the paper more understandable or interesting to the reader. In fact, only one writer mentioned that the editor helped make people understand the paper better, and even then, the goal was to get a better grade. Their comments suggested that they were not reflecting on their topics or even considering new ideas during the editing phase. For students not

engaged in peer editing and peer conferences, editing had little purpose beyond correcting errors and they had no understanding about how to read their own papers from the perspective of their potential readers.

Conditional Knowledge About Writing

Following a global examination of revisions from first to second draft, three students were selected as best characterizing the strategies implemented by students in that group: Rachel from the SC group, Mike from the TS group, and Mark from the SC/TS group. Conditional knowledge will be described in terms of the relationship between plans made on the students' think sheets and writing samples from first and second drafts. A general description of evidence of strategy use within the three treatment groups is presented first, followed by illustrative examples from Rachel's, Mike's, and Mark's writing packets.

In general, students in the SC group showed growth in their ability to develop a revision plan based on their editors' comments, but they tended to be vague in both their comments on the peer editing think sheet and in the specifics of their revision plans. They showed an increasing sensitivity to audience over the course of the program and asked questions of their readers to promote author/reader interactions. However, they indicated some frustration over the lack of specific suggestions from their editors, as evidenced by their comments about editors who did not provide needed assistance. In contrast, students in the TS group were specific in their revision plans and carried out their plans when revising their papers. As expected, their plans focused on adding key words, inserting missing information based on questions specific texts should answer but showed little

awareness or sensitivity to their audience. Finally, students in the SC/TS group initially showed an increasing concern for their readers and some frustration in not knowing how to improve their papers. Like students in the TS group, SC/TS group students used text structure information learned during Phase II in making revisions. However, they seemed to keep audience concerns and involvement as a primary goal.

Illustrative examples of these patterns can be found in students' writing packets. Students' conditional knowledge was assessed in their plans for revision, either prior to or following an editing session. In early fall, Rachel, in the SC group, showed little concept of how to develop questions for her editor. She wrote, in fact, "I don't have no questions [for my editor]" or similar statements on several of her early editing session preparation sheets. Although she initially took no control of the editing process, she did indicate that she expected assistance, stating that she had "[no questions] because she [her editor] will tell me in the paper I am getting." However, as Rachel began to take control of the writing process, she made requests of her editor, and her questions showed increasing recognition of audience, asking, "How do you like it? Do I need to change anything around? Do I need an opening sentence?" By spring, she also expressed frustration at a peer editor's lack of substantive feedback, stating, "[she had a problem with] the end, but didn't tell me why!" Her solution to "take the end and make it longer" suggested that she as well as her editor may have been able to recognize problems (e.g., weak ending) but did not have strategies available for solving them, other than to add on by writing an additional word or two. Her initial ending was "If I hadn't of writ [sic] this no one would know what

our name means." She expanded it to say, "If I hadn't wrote this paper no one would know what my point of view is on being a hunter" (the class nickname).

Students in the social context group tended to have a well-developed sense of author/reader relationships. This was illustrated in their tendency to bring in personal experiences or anecdotes even in expository papers. Rachel's comparison/contrast papers from fall to spring illustrate her growing sensitivity toward the reader. In the fall, Rachel's comparison/contrast paper consisted of two definitions, one for each of two emotions. In the spring, she compared and contrasted living in the mountains of Colorado versus living in the plains. She described the geography, jobs, clothes, and food, and ended by asking her readers where they would rather live. Her sense that writing communicates information to readers is illustrated by the sentence describing why she wrote about being called a "hunter." Her concern for the reader and her personal involvement with the topic enhanced her ability to write more complete papers that were both interesting and informative.

Students in the TS group made their greatest gains in their understanding of text structure forms. In the early fall, Mike showed little concept of text structure in expository writing. For example, in writing a problem/solution paper, he wrote:

> Once I was at a lake and I fell and bumped my head. I cried a lot. That night, when I was asleep, I started to yell. My mom and dad came running. Then I said "My nose needs cleaning."

Missing from Mike's paper were the text structure clues that signal the readers to expect a particular organizational structure and type of information (e.g., problem, causes, and solution). Even within the paper, Mike failed to convey explicitly the relationship between his ideas, such as falling and bumping his head, starting to yell at night, and his nose needing to be cleaned.

In the spring, Mike clearly showed a greater understanding of text structure. When planning a first draft, he stated that he was comparing languages on the basis of grammar, sounds, and words. In fact, his first draft contained these structural elements, as well as key words and phrases that signal the relationship among these ideas. He wrote, "Sounds are another thing I'm comparing languages on. Each language has sounds. For example, English has 43 sounds and Spanish has 24." When revising this draft, Mike showed his deepening awareness of the importance of key words. Note how his revised paragaph included more, and more appropriate, key words that precisely convey the likenesses and differences between languages:

> Another thing languages can be compared on is sound. Like grammar, every language has sound. Some of these are similar, but most of them are different. Not all languages have the same amount of sounds. For example, English has about 43 different sounds, and Spanish has only 24 sounds. (Emphasis added.)

Although he understood structure, Mike was less concerned with audience than with structure for his writing. When asked what he could do to make his paper even more interesting, he wrote that he would add more information about sounds: "Most languages have 20-60 sounds, Russian has 50." Yet his revision did not contain any reference to the Russian language, suggesting that his plans for maintaining reader interest in the topic was less important than his plans for conveying text structure cues through the addition of conventions such as key words and questions.

In contrast to Rachel and Mike, Mark in the SC/TS group showed an increasing awareness of both audience and form in planning and revising his drafts. In the fall, when purpose and audience were introduced, Mark showed a concern for the reader but was unsure how to structure his writing to communicate the text structure. For example, in the following excerpt from a

paper, he told his reader to have fun but did not have a clear picture of the parallel attributes on which he was comparing and contrasting his topics (spelling and punctuation errors appear as written in the draft):

> Kickball and baseball are alot a like and different. In kickball, you kick the red rubber ball then run on base and in baseball you hit then run to the ball. In kickball if the ball goes to a side its fowl and baseball if you miss the ball its a strike. If you kick a ball and its caught you're out, so if your on base don't run unless they miss the ball. Things that are the same are 3 outs, 3 strikes, if they catch it your out and 1 base for an over throw. That's how you play so have fun!

Like many students in context classrooms, Mark even senses that something is wrong with the organization. On his revision plan, he stated that he needed to "put it [the ideas] in better order." However, Mark did not have the tools for reorganizing his ideas, and his final draft remained essentially the same as his initial draft. In fact, most of his changes involved minor word changes and insertions.

After instruction in text structure, Mark showed a better grasp of what information to include and how to organize it. In writing a problem/solution paper, for example, Mark's revisions provide greater detail about the cause of the problem and suggest specific actions as solutions to the problem. Furthermore his concern for the reader remained foremost in his mind. As a strategy to make his expository papers more interesting to his readers, Mark often introduced main characters as a focal point to provide information about the topic to his audience. The paper below (errors as originally written) illustrates how he combines foci on text structure and audience in a comparison/contrast paper.

> As Bill Robinson landed in Brazil he said "All those mountains over there, do people live in them". "Yes" said the tour guide. Now today I am going to tell you how the Aztecs and Brazil are alike and different. One way their alike is they both live near

alot of mouintains. And one thing how there different is the Aztecs live in homes they built and here in Brazil people live in shacks in the mountains.

"How do they get food"? asked Bill. "Well one way their alike in getting food is they both grow food and there different because the Aztecs built crops of rafts because they didn't have enough land and Brazil grow coffee on land."

These examples, and others based on an examination of the students' writing packets, provided information about students' implementation of the strategies they described during their interviews and on their questionnaires. Clearly, there is a general consistency between what students say they do and what they actually did when they wrote, although the correlation is not perfect. In some instances, students' described specific strategies that they did not use during writing; in other cases, students applied strategies that they were not able to describe. The point to be stressed is that strong relationship exists between the type of instruction students received and strategies they were able to discuss and use during writing.

Discussion

An important question addressed in this study is the effect of treatment on students' understanding of the writing process and strategies appropriate to different aspects of this process. Generally, we can categorize the effects of the treatments by the declarative, procedural, and conditional knowledge of students (Paris, Lipson, & Wixson, 1983). We had predicted that changes would generally vary across treatments, with students in social context groups focusing on the communicative nature of the writing process, students in the text structure group focusing on the importance of answering questions and organizing ideas, and students in the combined treatment group reflecting a combination of emphases. Results generally supported predictions.

Students in the social context classrooms placed a greater emphasis on the social, communicative, and interactive nature of writing. In their statements about audience, SC students perceived an expanded audience in the writing community that included peers, friends, parents, and teachers. They were explicit in their statements that the purposes of writing were to communicate and have fun with writing. Furthermore, their comments about the editor's role confirmed that they viewed the writing process as one in which the writer engages in sense making in the same way that readers engage in sense making in the reading process and that revision activities are essential to the communication process. These findings confirm the importance of peer editing and publication of students' writing stressed by researchers such as Graves (1983), Hansen (1983), and Elbow (1981). These findings extend the research by documenting the ways in which establishing such an environment changes students' views of purpose, audience, and construction of meaning during writing.

Students in the text structure groups, who wrote without peer editing and publication, were more passive in the communication process. They had a limited view of audience (i.e., their teacher), and, although they increased their belief that the purpose of writing was to learn, they did not develop a clear sense of writing for the purpose of communication. They mentioned the role of friends in the writing process only from the perspective of telling their friends what to do or what they had done, rather than from a more interactive perspective of giving, sharing, and learning from peers. In sum, text structure instruction, without an emphasis on audience and purpose, led students to complete the steps of the writing process mechanically, without a clear understanding of the communicative significance of these activities.

Research on text structure instruction has shown the positive impact of such instruction on students' ability to recall text (e.g., Taylor & Beach, 1984). It has also shown that text structure instruction leads to students' gains in their ability to summarize stories (Gordon & Braun, 1985). The findings from this study suggest that such instruction alone does not improve the writer's sense of audience and purpose.

Changes in students' procedural knowledge can be seen in their responses to questions about methods to select and organize expository information. Students who received text structure instruction were more precise and concise in their replies to these questions. They recognized specific text structures (e.g., problem/solution, comparison/contrast) from titles and clearly indicated what information should be included and how it should be organized. Students who did not receive text structure instruction tended to provide rambling and incorrect responses to these same questions. Although they understood the steps of the writing process, they were less strategic in their ability to use text structures to help them plan, organize, and revise drafts. Knowledge of text structures seemed to be most valuable in guiding students to consider what information to include, what questions to answer, what key words and phrases to use as signals to readers, and how to organize and revise their ideas.

Changes in students' conditional knowledge can be seen in their planning, drafting, and revising of papers. Students in the SC group tended to focus on the audience. They tried to recruit their readers' attention and interest by asking questions and by telling firsthand personal experiences. In contrast, students in the TS group emphasized strategies for organizing and revising their drafts. They showed a greater awareness of what information to include

and how to signal relationships among ideas. Finally, students in the SC/TS group showed elements of both intervention programs. These findings extend initial work by Lange (1985) by further specifying ways in which students differentiate among text structures and the ways that this affects their control of the writing process.

In summary, students in the SC and SC/TS groups showed a heightened awareness of the range of people who constituted their audience; they could articulate the processes involved during writing, particularly those during editing and publishing of papers. Students in the TS and SC/TS group showed an increased sense of ways to present information in an organized manner. They also showed greater sensitivity to different types of texts and the questions these texts are able to answer. An awareness of the importance of questions appeared during discussions of planning and editing phases. All three treaments had a positive impact on students' knowledge about the writing process and on their awareness of writing strategies. Observations made while researchers visited classrooms during the year indicated students used this knowledge in other curriculum areas. For example, Darryl, a SC student, created his own think sheets for a writing assignment required by his teacher (taken from the language arts textbook). Rose, a SC/TS student, told her teacher, with a great deal of excitement, "I just figured it out! This is an explanation question, isn't it?" (pointing to her social studies book). "Now I know how to do this!" Freddy, a low-achieving SC student, summarized the benefits best in a note he wrote spontaneously at the end of his posttreatment group questionnaire (errors appear as written):

> To Dr. R,
>
> I don't like to write but when you came along I begane to write. I thank you four helping me to starte liking to writting.
>
> from your best freind
>
> Frederick Thank you!

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